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EXAMINER
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SALVITTI, MICHAEL A

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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04/15/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

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mailroom@bskb.com

## **ADVISORY ACTION**

### ***Response to Amendment***

The proposed amendments are not being entered as they would require new search and further consideration.

Claims 1 and 11 present previously unexamined limitations requiring the linkage segments to be present at the terminus of the urethane chain. This imparts a new structural limitation to the final polymeric product, causing the urethane to crosslink perpendicular with the vinyl polymer chain, as shown by applicant's diagram (see page 11 of "Remarks"). Further search and consideration is needed for this previously unrecited feature.

Claims 18 and 19 present new and previously unexamined limitations; these new claims have been presented and a corresponding number of finally rejected claims have not been cancelled.

### ***Response to Arguments***

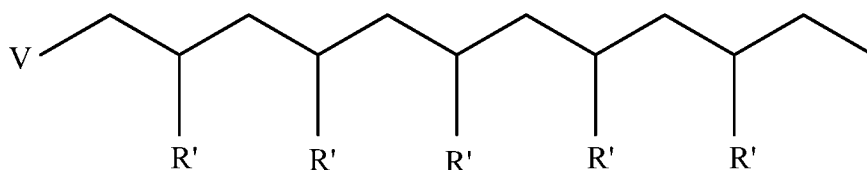
The following responses are directed to the document entitled "Remarks" (pages 9-15) received March 31<sup>st</sup>, 2010. Arguments directed to the presently amended limitations have been given little weight, as they have not been presented previously or examined on the merits.

**A)** Applicant's arguments with respect to the rejection of claims 1-17 under 35 U.S.C. 103(a) to *Bontick* (USPN 5,541,251) in view of *Joffre* (USPN 5,840,800) have been considered but have not been found to be persuasive.

In response to applicant's arguments that *Bontick* does not include a silicon-oxygen linkage segment between the vinyl and urethane polymer, the teachings of *Bontick* can be summarized as follows:

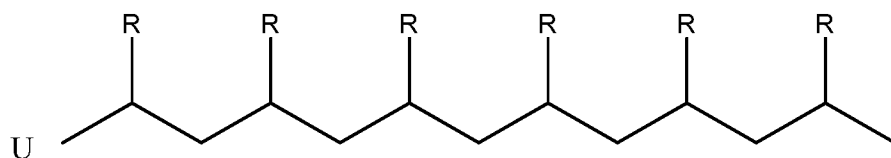
*Bontick* teaches an aqueous crosslinked polyurethane/polyvinyl copolymer (*Bontick* col. 2, lines 55-68). *Bontick* further recognizes the desirability of physical properties such as elasticity and durability. The polymers of *Bontick* can be visualized in the following manner (see Example 35, which is an overarching preparation process for combining the vinyl and urethane copolymers of Examples 9 and 1, respectively):

*Bontick* Example 9 prepares a vinyl copolymer (represented by "V") having a crosslinking-reactive moiety (acetoacetoxyethyl methacrylate; represented by "R' "; this is analogous to "C" in instant claim 2, and methyl methacrylate is analogous to "B"):

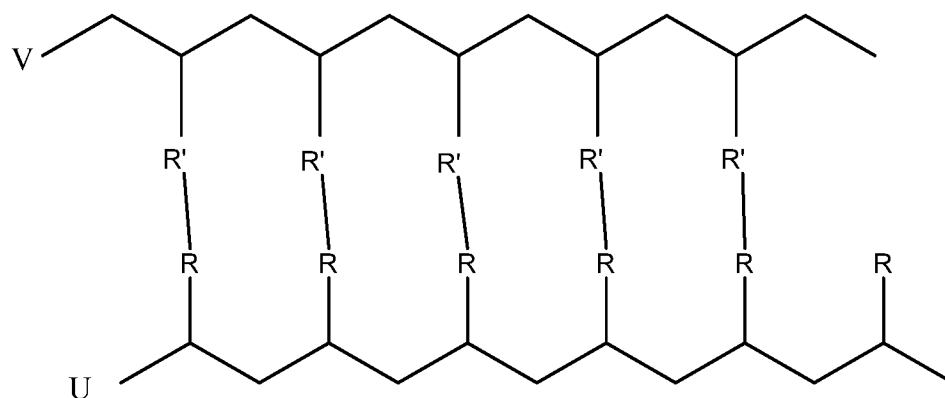


*Bontick* Example 1 prepares a polyurethane (represented by "U") having pendant groups reactive with the active sites on the vinyl polymer (represented by R; the polymer contains dimethylolpropionic acid moieties, which contain -OH groups capable of reacting with the acetoacetoxy groups on the vinyl polymers; the -OH group is analogous to "A" in instant claim 2):

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The vinyl and urethane polymers are crosslinked in Example 35, generating a structure that roughly has the following structure:



As such, there is a crosslinking motif wherein the vinyl polymer is bound to the urethane polymer via an intermediary of crosslinking moiety in *Bontick*.

The difference between *Bontick* and the claimed invention is that *Bontick* utilizes a crosslinking motif wherein the urethane polymer (containing an hydroxy acetoxymethyl reactive moiety) crosslinks with the vinyl monomer (containing an acetoxymethyl moiety), whereas the instant claimed invention contains a urethane polymer having a silicon crosslinking moiety and the vinyl polymer contains a silicon-reactive moiety.

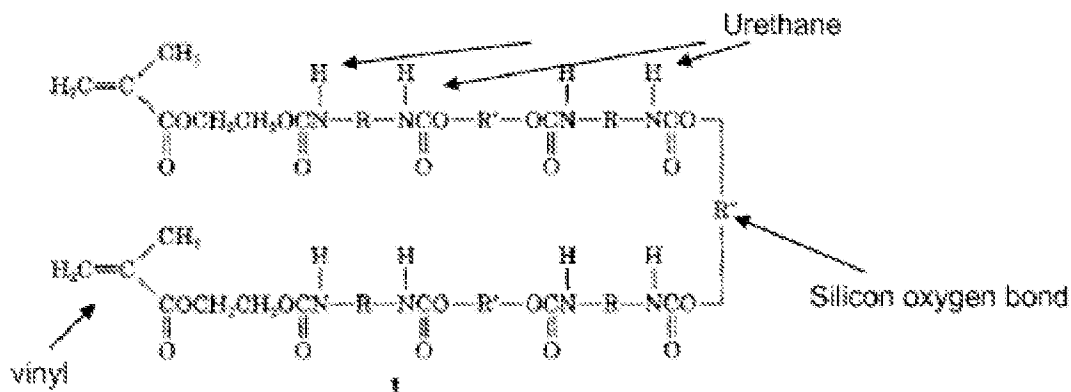
*Joffre* teaches that crosslinked polymer chains containing silicon-oxygen bonds in polymers such as vinyl and urethane polymers (see *Joffre* claim 6) allows for an elastomeric polymer (*Joffre* col. 3, line 3) having improved shelf life, compatability, and reduced toxicity (*Joffre* col. 3, lines 15-20). *Bontick* and *Joffre* are analogous art, in that they both utilize crosslinked vinyl and/or urethane copolymers in aqueous dispersions

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as curable coating compositions. A person having ordinary skill in the art would be motivated to substitute of the acetoxycrosslinking motif presented by *Bontick* with the silicon-oxygen crosslinking motif of *Joffre* as a means of improving the shelf-life, polymer compatibility and reducing the toxicity of the crosslinked dispersion.

**B)** Applicant's arguments that the amendment to the claims examined in the Office Action of August 17<sup>th</sup>, 2009 did not change the scope of the claims (page 14 of "Remarks") have been considered, but have not been found persuasive.

Claims 1 and 11 were limited in the response filed January 29<sup>th</sup>, 2009 by a urethane polymer chain and a vinyl polymer chain being combined through an intermediary of a linkage segment having a silicon-oxygen bond. This did not require the bond of either polymer to the silicon oxygen bond, and only limited the silicon oxygen bond to be present somewhere in between a vinyl polymer and a urethane polymer (an intermediary). This feature is most easily visualized by the structure presented in the *Lai* reference (*J. Appl. Poly. Sci.* 56, 301-310 (1995)):



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*Lai* shows in this example a silicon-oxygen bond ("R" ") residing between the bottommost vinyl and the topmost urethane polymer as an intermediary linkage, but only bonded to the urethane.

The Amendment filed August 17<sup>th</sup>, 2009 required the silicon-oxygen bond to be bonded to both the urethane and the vinyl polymer chain; neither *Lai* nor *Schindler* teach this feature, which necessitated new art to be applied to the amended claims.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL A. SALVITTI whose telephone number is (571)270-7341. The examiner can normally be reached on Monday-Thursday 8AM-7PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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